USSR/Organic Chemistry - Naturally Occurring Substances and Their Synthetic Analogs, E-3

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 61681

Abstract: a potentiometer must be carried out during primary neutralization from pH 6.0 to 9.0 after addition of H_2CO. In the presence of lysine and NH_3 the gasometric method does not yield reliable results. The authors consider most of the protein linkages as appertaining to the amidin linkages.

Card 3/3

GAVRILOV, N.I.

A.G.Pasynskii's and V.A.Belitser's concepts of the structure of protein molecules. Vest.Mosk.un. 11 no.5:121-136 My '56. (MLRA 9:10)

1.Kafedra organicheskoy khimii.
(Proteins) (Molecules)

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 920

Author: Petrova, R. G., and Gavrilov, N. I.

Institution: None Moscow State Univ.

Title: Aminoacid Amidines of the Dihydropyrazine Series. I. Synthesis of the Amidines from the Iminoether (0,0-dibenzyl-2,5-dioxydihydropyrazine)

Original Periodical: Zh. obshch. khimii, 1956, Vol 26, No 1, 258-264

Abstract: The reaction of the 0,0-dibenzyl ether of 2,5-dihydroxydihydropyrazine (I) with aniline (II) yields diphenyl-2,5-dihydropyrazineamidine (III). Similarly, condensation of I with propylamine (IV) yields dipropyl-2,5-dihydropyrazineamidine (V). Condensation of I with glycine ester (glycine VI) and the methyl ester of thyroxine (VII) apparently leads to the formation of polypeptoid amidines of the type $H_2NCH_2C(NHCHR-COOR') = NCH_2CONHCHRCOOR'$ (VIII). The formation of VIII is possible only by the unsymmetrical cleavage of the intermediate

Card 1/3

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 920

Abstract: dihydropyrazineaminoacid amidines; this is confirmed by the formation (in the reaction with IV) of diketopyrazine and the ester of VI. The action of the acid chloride of phthallylglycine (IX) on I yields N,N'-diphthallylglycinediketopyrazine (X). A mixture of one gramme of I, 0.63 gms of II, 1.5 gms of picric acid (XI), 30 ml anhydrous CH_3OH, and 20 ml $CHCl_3$ is stirred for 2 weeks, evaporated at ~20° in vacuum; addition of absolute alcohol yields the dipicrate of III (IIIa) in yields of 96%, mp 193-193.5°. When dry HCl is passed through an ether solution of IIIa up to pH 2-3, the hydrochloride of III is obtained, mp 248-250°. Similarly, the condensation of 0.4 gms of I with 0.16 gms of IV and 0.62 gms XI yields the dipicrate of V in yields of 98%, mp 194-195°; the latter is converted to the hydrochloride of V, mp 204-206°, by a method similar to that used for IIIa. A $CHCl_3$ solution of 2.5 gms of I is heated with an absolute alcohol solution containing 2.4 gms of the hydrochloride of the ethyl ether of VI; heating is continued for several hours at 50-60°. A precipitate is formed after the addition of the ether; the author assigns the structure of the dihydrochloride of VIII (R = H, R' = C_2H_5) to the precipitate. When a mixture of 0.5 gms of I, 0.66 gms of VII, 0.77 gms of XI, in 30 ml of anhydrous

Card 2/3

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 920

Abstract: CH_3OH and 20 ml of $CHCl_3$ is stirred for 2 weeks, the picrate of VIII ($R' = CH_2C_6H_4OH$, $R' = CH_3$) is formed. The substance resinifies on exposure to air. A mixture of one gramme of I, 1.42 gms of IX, and 20 ml xylene is heated (100° for 3 hours, and 110° for 1/2 hour); X is filtered off, mp ~385° (decomposes).

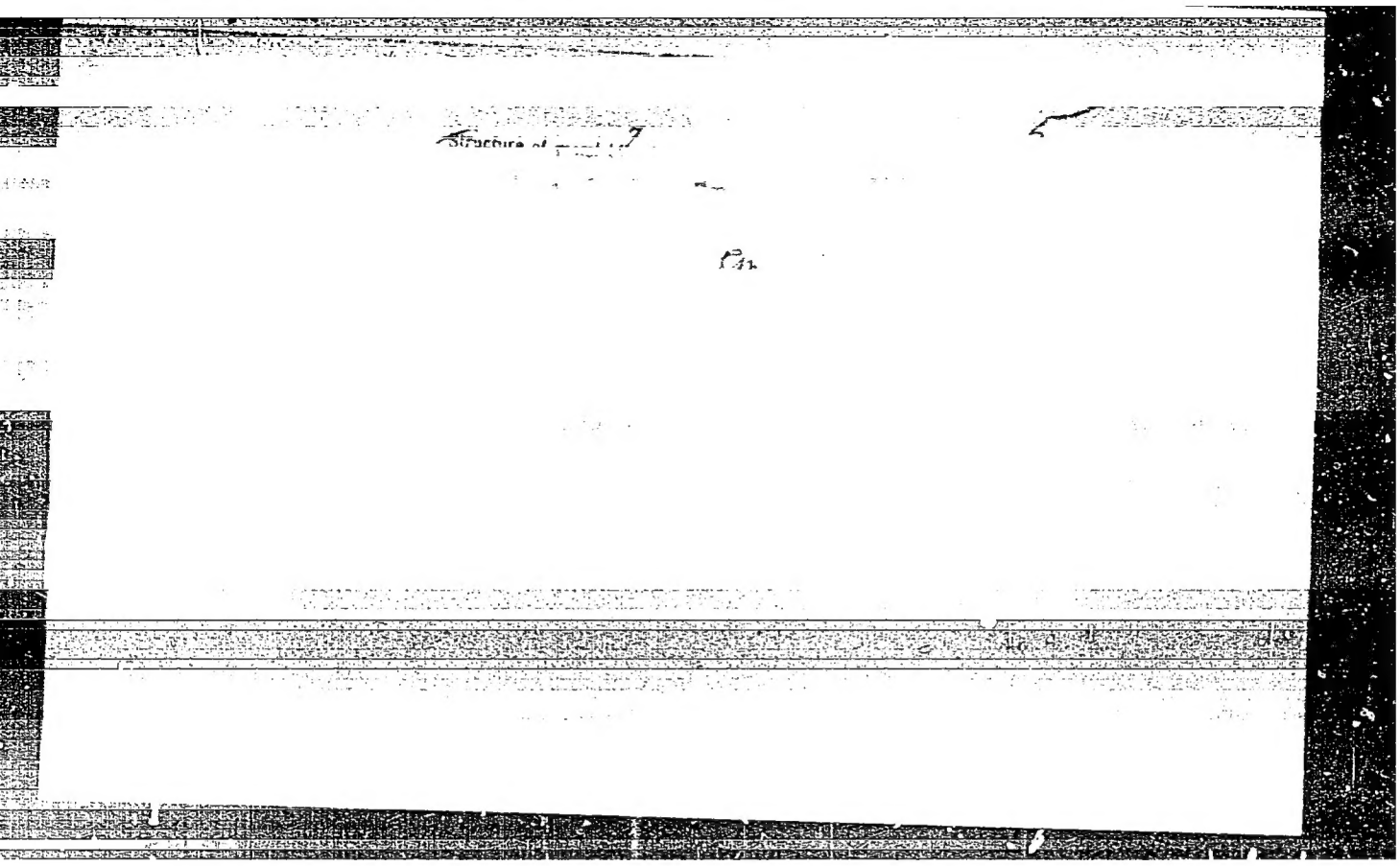
Card 3/3

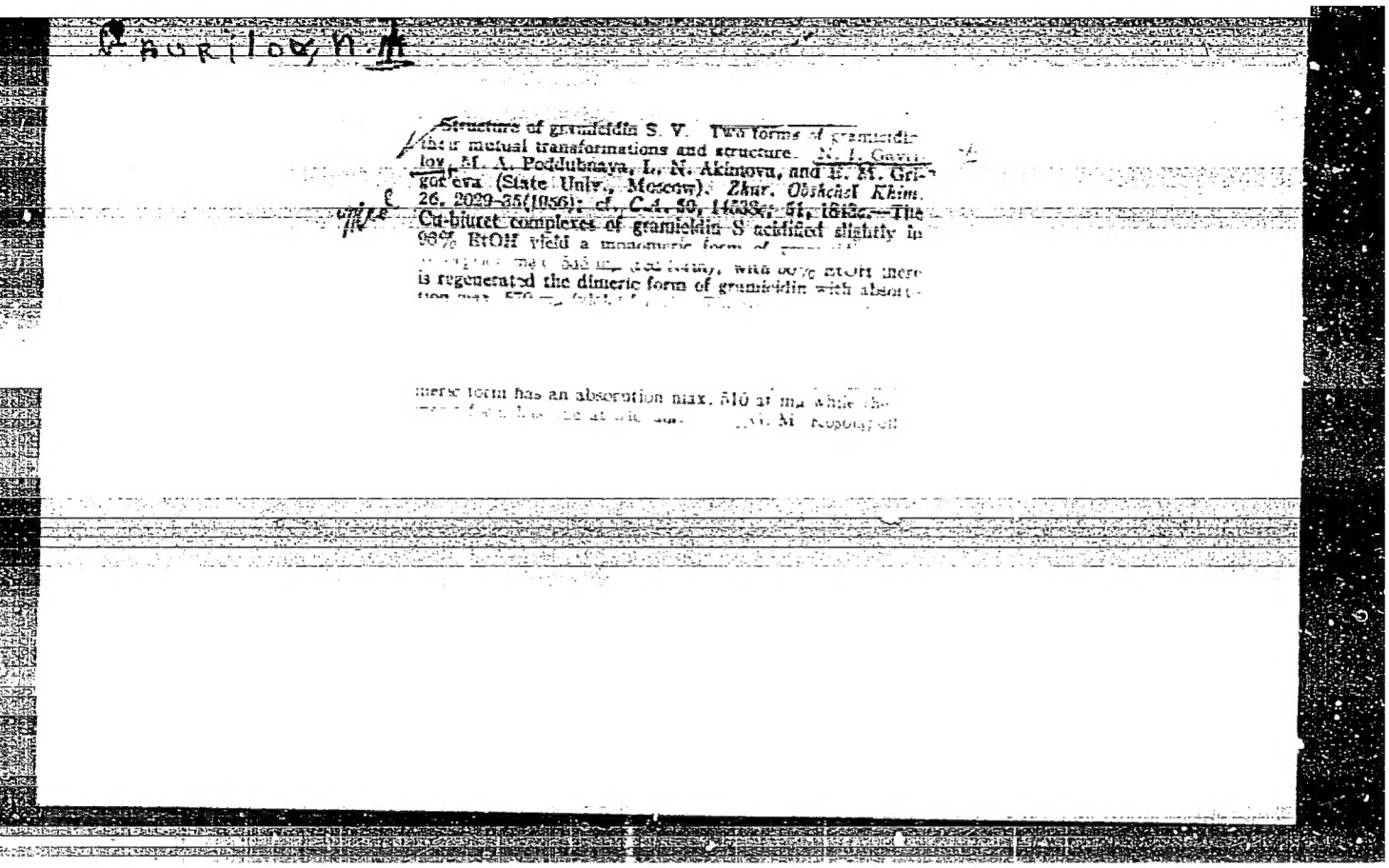
Gavrilov, N. I.

PODDUBNAYA, N.A.; GAVRILOV, N.I.; KISELEV, M.I. [deceased]

Structure of gramicidin S. Part 4: Studies of its copper complexes. Zhur.ob.khim. 26 no.6:1779-1786 Je '56. (MIRA 11:1)

1.Moskovskiy gosudarstvennyy universitet.
(Gramicidin) (Copper compounds)





BURLOV, N.A.

Structure of gramicidin S. V. Two forms of gramicidin, their mutual transformations and structure. N. I. Gavrilov, M. A. Poddubnaya, L. N. Akimova, and E. M. Grigor'eva (State Univ., Moscow). *Zhur. Obshchei Khim.* 26, 2029-35(1956); cf. *C.A.* 50, 11638c; 51, 1813c.—The Cu-biuret complexes of gramicidin S acidified slightly in 98% EtOH yield a monomeric form of [illegible] with 60% EtOH mere is regenerated the dimeric form of gramicidin with absorption max. 570 [illegible]

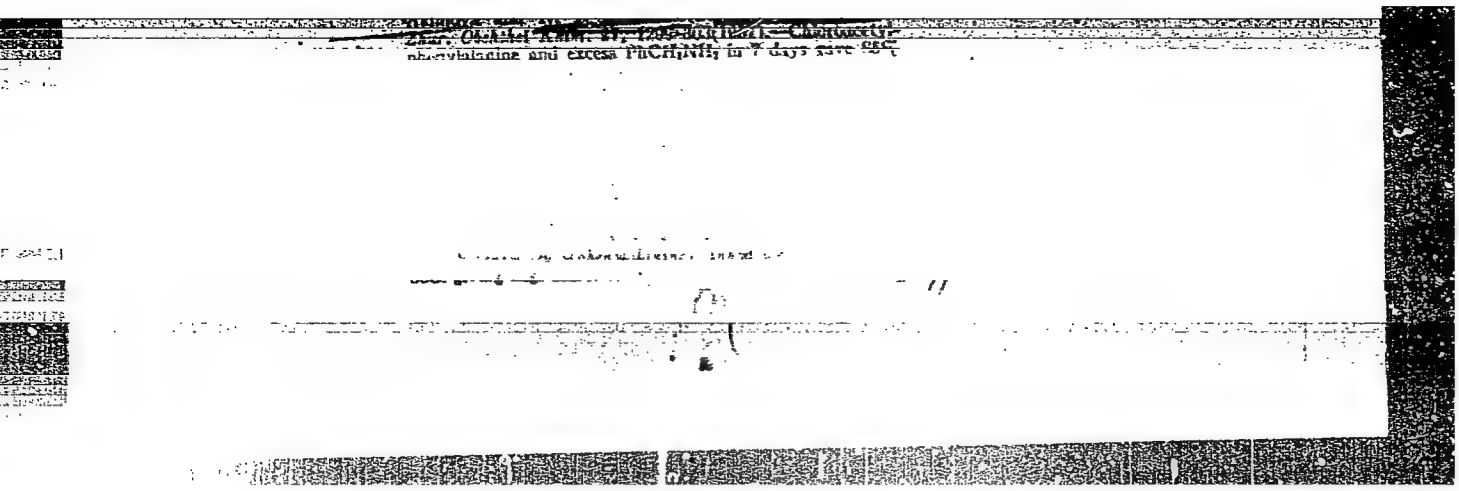
meric form has an absorption max. 510 at ma [illegible]

GAVRILOV, N.I.

Protein structure. Uch.zap.Mosk.un. no.175:201-230 '56. (MLRA 10:3)

(Proteins)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R000514510003-2"



GAVRILOV, N.I.

AKIMOVA, L.M.; GAVRILOV, N.I.

On protein microstructure. Part 14: Amino acid piperazides. Zhur.ob. khim. 27 no.6:1562-1565 Je '57. (MLRA 10:8)

1.Moskovskiy gosudarstvennyy universitet.
(Amino acids) (Piperazine)

GAVRILOV, N. I.

AKIMOVA, L.N.; GAVRILOV, N.I.; AKIMOVA, A.A.

On some properties of N-benzylated peptides. Part 2. Zhur. ob. khim. 27 no.8:2268-2273 Ag '57. (MLRA 10:9)

1. Moskovskiy gosudarstvennyy universitet.
(Peptides)

AUTHORS: Orlova, T. I., Gavrilov, N. I. 79-12-27/43

TITLE: The Electric Reduction as a Method of the Investigation of Albumen (Elektro-vostanovleniye kak metod issledovaniya belka).
I. The Investigation of the Compounds Forming With the Electric Reduction of Some Diketopiperazine (I. Izucheniye veshchestv, obrazuyushchikhsya pri elektrovosstanovlenii nekotorykh diketopiperazinov).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 12, pp. 3314-3321 (USSR).

ABSTRACT: Following earlier works the authors continued the investigation of the electric reduction of diketopiperazines at the mercury cathode and by means of the chromatographic method on paper investigated as detailed as possible the compounds forming in this case. At the same time piperazines were separated and their structure was proved. The chromatogram, in relation to the electric reduction of the glycineanhydride (figure 1) shows that the cathode solution contains very little glycylglycine, glycineanhydride and possibly glycine during the reduction of piperazine after from 3 to 6 hours. Also chromatographically shown was that after the reduction of diketopiperazine the hydrolysetes of the cathode solutions contain the respective amino acids and piperazines but no other products. The electric reduc-

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The Electric Reduction as a Method of the Investigation of Albumen. 79-12-27/43
I. The Investigation of the Compounds Forming With the Electric Reduction of Some Diketopiperamine.

tion at the mercury cathode was investigated with the following diketopiperamines: glycine-anhydride, alanineanhydride, glycylalanineanhydride and glycylphenylalanineanhydride. Thus the authors showed that piperazines form with the electric reduction. Their structure was proved by the production of their picrates and dinitrophenylderivatives as well as by means of a comparison of their characteristics with those of the corresponding derivatives of the known piperazines. The synthesis of the piperazines does not take place with preliminary formation of aminoaldehydes. A system of solvents for the chromatographic classification of piperazines was proposed.
There are 5 figures, and 16 references, 5 of which are Slavic.

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy universitet).

SUBMITTED: Novemoer 3o, 1956.

AVAILABLE: Library of Congress.

Card 2/2

1. Organic compounds - Chromatographic analysis
2. Diketopiperazine - Electric reduction

Gavrilov N. I.

AUTHORS: Orlova, T. I., and Gavrilov, N. I. 20-2-21/50

TITLE: On Some Electroreduction Products of Gramicidin C (O nekotorykh produktakh elektrovosstanovleniya gramitsidina C).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 2, pp. 239-240 (USSR)

ABSTRACT: The conception of the existence of a diketo-piperazine cycle (consisting of proline and phenylalanine) in gramicidin C was obtained on an indirect way. Namely based on the reduction of amino-nitrogen by 2 amine groups in the hydrolysate of the reduced gramicidin C, compared to the hydrolysate of a non-reduced gramicidin C. The authors considered it important to isolate 1,2-trimethylene-5-benzyl-piperazine, which comes from d-phenylalanine-1-prolyl-anhydride, from the reduction products. In spite of the reduction of 1 g gramicidin C it was not possible to discover the piperazine sought for. The authors isolated the basis which proved to be d-phenyl-alaninol (α-benzyl- α-amino-ethanol).
Gavrilov and Koperina observed the reducibility of the linear dialkylamides of phenyl acetic acid, but did not thoroughly study the reaction products. The authors for the

Card 1/2

time being refrain from dealing with the causes of the formation of an amino-alcohol in the electroreduction of gramicidin C; this apparently is the chief direction of the reaction, as phenylalanine completely disappears, whereas d-phenylalanonol was alone determined from the number of the reduction products. An experimental part with the usual data follows. There are 7 references, 2 of which are Slavic

ASSOCIATION: Moscow State University imeni M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova)

PRESENTED: By A. N. Nesmeyanov, Academician, May 7, 1957.

SUBMITTED: May 4, 1957

AVAILABLE: Library of Congress.

AUTHORS: Vovchenko,G.D., Gavrilov,N.I., and Akimova,L.N. SOV/55-58-1-1/33

TITLE: The Albumen Problem From the Point of View of Modern Sciences (Problema belka v svete nekotorykh dannykh sovremennoy nauki)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya fiziko-matematicheskikh i yestestvennykh nauk, 1958, Nr 1, pp 3-22 (USSR)

ABSTRACT: The paper gives a detailed survey of the modern state of research of albumen. The albumen problem is denoted to be the central question of philosophy and natural sciences, where numerous extracts from the "dialectics of the nature" of Engels as well as several citations of Lenin shall certify this point of view. In connection with the political tendency of the article is the special consideration of the Soviet research of albumen. The authors mention: Zelinskiy,N.D. and his school (chemistry of amino acids and other products of the albumen hydrolysis), Gavrilov,N.I. (form of albumen molecules), Talmud,D.L. (legalities of the structure of globular albumens), Kargin,V.A., Vilenskiy,V.A. (physical chemistry of albumens), Belozerskiy,A.N., Prokof'yev,M.A., Manoylov,S.Ye.(nucleoproteids), Kedrovskiy, B.V., Rumyantsev,A.V., Nasonov,D.N. (morphology and physiology of the cellular structure

Card 1/2

The Albumen Problem From the Point of View of Modern Sciences SOV/55-58-1-1/33

of albumens), Engel'gardt,V.A., Lyubimova,M.N.(demounting of albumen in muscles), Pavlov,I.P., Danilevskiy,A.Ya., Bakh,A.N., Blagoveshchenskiy,A.V. (ferments and their synthesis), Pryanishnikov D.N. (change of nitrogen of plants), Orekhovich,V.N. (cellular albumen), Konikova,A.S., Kritsman,M.G. (changes of albumen as a carrier of life).
There are 48 references, 31 of which are Soviet, 2 Swiss, 8 German, 5 American, 1 Italian, and 1 Swedish.

ASSOCIATION: Laboratoriya khimii belka imeni akad. N.D.Zelinskogo (Laboratory of Albumen Chemistry imeni Academician N.D.Zelinskiy)

SUBMITTED: August 29, 1957

Card 2/2

GAVRILOV, N. I.

79-2-26/64

AUTHORS: Akimova, L. N. , Kuranova, I. P. , Gavrilov, N. I.

TITLE: On the Models of Protein Microstructure (O modelyakh mikrostruktur belka) III. On the Structure of Phenylalaninanhydride Derivatives (III. O strukture proizvodnykh fenilalaninangidrida)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 2, pp. 398 - 403 (USSR)

ABSTRACT: In the preceding report it was shown that the formation of N-aminoacylderivatives of phenylalaninanhydride takes place especially smoothly and with a good yield, when the phenylalaninanhydride is acted upon by chlorine anhydrides of amino acids (reference 1). Formerly, in the investigation of the behavior of N-aminoacyl derivatives of glycine anhydride, their extraordinary stability in an alkaline medium and a peculiar behavior toward the influence of hydrazine were emphasized (reference 2). This resulted in the following: 1) The addition of hydrazine to the CO-groups of the phthalyl protection in the performance of the reaction in the cold in ether or alcohol; 2) the splitting off of the phthalyl group on heating in alcohol and 3) the splitting of the diketopiperazine ring with the formation of phthalyltripeptide-hydrazide, without a breaking of the acyl bond. In the present work the properties of the phenylalaninanhydride derivatives were investigated and their easy hydrolyzation under the influence of aqueous and alcoholic

On the Models of Protein Microstructure. III. On the Structure of Phenylalanin-anhydride Derivatives

alkali-solutions and hydrazine was shown. Thus the influence of the aminoacid composition, as well of the anhydride as of the acyl group upon the properties of these derivatives was for the first time observed in the example of the aminoacyl derivatives of two anhydrides (glycine anhydride and phenylalanine anhydride). The influence exerted by the aminoacid composition upon the stability of the N-aminoacyl- as well as the acyclic bonds was noticed in the investigation of the properties of the aminoacid anhydride derivatives synthesized by the authors. It was found that the stability of the cyclic bond in aminoacyl anhydrides is not only dependent on the aminoacid composition of the anhydride but also on the amino acids which are contained in the amine-acyl-side group. In contrast to the easily decomposing aminacyl derivatives of phenylalaninanhydride the same glycine anhydride derivatives (according to their aminoacid composition of the aminacyls) are extremely stable. Thus the stability of the NH-CO-linkage is different in an isolated cycle and in a cycle with the N-aminoacyl linkage and depends on the amino acids which are contained in the cycle of the aminoacyl group. The stability of the N-acyl- and N-aminoacyl linkages directly depends on the aminoacid composition of the anhydride. It becomes especially obvious in the investigations of the interaction

79-2-26/64

On the Models of Protein Microstructure. III. On the Structure of Phenylalanin-anhydride Derivatives

products of the anhydride derivatives with hydrazine. The N-amino-acyl form of the linkage, as one of the chemical compounds of di-ketopiperazine with amino acids and their derivatives, cannot be investigated separately, isolated from the amino acids which partici-pate in their formation. Summary: 1) The synthesis of the N-amino-acyl derivatives of the phenylalaninanhydrides was described: N,N'--di-phthalyl glycyl- and N,N'-di-phthalylalanyl-phenylalanylanhydri-de. 2) The earlier expressed assumption on the mechanism of the elimination of the N-aminoacyl group from these compounds under the influence of hydrizine was confirmed. 3) The authors investi-gated their behavior under the conditions of the biuret reaction of protein (4 % NaOH). The authors showed their decomposition under the influence of alkali, to phthaloylglycyl-phenylalanyl-phenylala-nine and phthaloyl-alanyl-phenylalanyl-phenylalanine. 4) On the basis of titration values (according to Vil'shtetter) a decompo-sition scheme of N-N'-di-phthalylvalyl-phenylalanine anhydride under the influence of alkali was suggested. There are 1 table, and 4 references, all of which are Slavic.

Card 3/4

79-2-26/64

On the Models of Protein Microstructure. III. On the Structure of Phenylalanin-anhydride Derivatives

ASSOCIATION: Moscow State University
(Moskovskiy gosudarstvennyy universitet)

SUBMITTED: January 7, 1957

AVAILABLE: Library of Congress

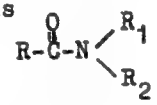
Card 4/4

AUTHORS: Orlova, T. I., Gavrilov, N. I. SOV/79-29-1-12/74

TITLE: Electroreduction of the Proline Peptides and the Dialkyl Amides of Amino Acids (Elektrovosstanovleniye peptidov prolina i dialkilamidov aminokislot)

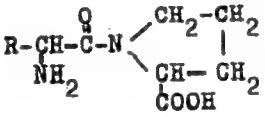
PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 1, pp 55-58 (USSR)

ABSTRACT: In previous papers (Ref 1) N. I. Gavrilov showed (Ref 1) that in the case of electroreduction diketopiperazines are transformed into piperazines, whereas peptides and amino acids, except cystine do not undergo any transformations under the same conditions. Apart from this it was shown that dialkyl amides of the aromatic acids



(I)

are just as well reduced by electric current. The reduction products were, however, not investigated.
The proline peptides



(II)

Card 1/3

Electroreduction of the Proline Peptides and the Dialkyl Amides of Amino Acids

in which the imine group of proline occurs in the peptide bond can be regarded as dialkyl amides of amino acids. It was therefore to be expected that in the above mentioned reduction under the same conditions proline peptides can be just as well reduced. The following peptides and peptide-like compounds were reduced: glycyl-L-proline, glycyl-D, L-valine, the hydrochloride of methyl ester of D,L-phenyl alanyl-D, L-pyroline; the dialkyl amides of amino acids: α-methyl pyrrolidine of glycocoll, piperidide of glycocoll, piperidide of D,L—phenyl alanine and the piperazide of D,L-leucine. In all mentioned compounds reduction takes place by the formation of an amine alcohol from amino acid; that the corresponding dialkyl amine (proline, α-methyl pyrrolidine, diethyl amine, piperidine, piperazine) frees itself according to the mentioned scheme. It is important that the nature of the amino acid does not act upon the structure of the final products of reduction as in all cases the corresponding amine alcohols were separated and chromatographically identified.

Card 2/3 There are 5 references, 2 of which are Soviet.

SOV/79-29-1-12/74

Electroreduction of the Proline Peptides and the Dialkyl Amides of Amino Acids:

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: November 20, 1957

Card 3/3

5(3)

AUTHORS: Makarov, K. S., Gavrilov, N. I. SOV/79-29-7-9/83

TITLE: On the Problem of the Properties and the Structure of Plasteins (K voprosu o svoystvakh i stroyenii plasteinov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 7, pp 2143-2152 (USSR)

ABSTRACT: On the basis of the molecular weights of plasteins (2000-6000) the authors tried to apply the method of electrophoresis according to Tiselius (Ref 17) on paper (Ref 18) and the method of electric reduction (Ref 19) in connection with spectrophotometry and determinations of the copper indices in order to compare the plasteins with the initial albumins. Their properties were characterized also by determinations of amino nitrogen, the relative viscosity of the solutions, the titration numbers as well as by determination of the toxic and anaphylactic properties in animal experiments. For the synthesis of plasteins two albumins which are widely spread in animals and differ strongly from one another by their properties, served as initial substances: inhomogeneous casein, insoluble in water, and serum albumin of man, soluble in water. One portion of casein and albumin was hydrolyzed with the mucous juice of the stomachs of

Card 1/3

pigs, the other one with pepsin, and the third one with hydrochloric acid according to Perov (Ref 21). The synthesis of the plasteins was carried out with the action of natural gastric juice of dogs and with the action of pure pepsin. Plasteins differ considerably from the initial albumins with respect to all their properties. Albuminous plasteins are relatively low-molecular, electrophoretic, homogeneous anhydrides of amino acids, of peptide cyclic structure, and have longer peptide chains in amino acids and a smaller amount of ring bonds than the initial albumins. The synthesis of plasteins is no simple process of hydrolysis. Hydrolysis and the subsequent synthesis are accompanied by intensive regroupings in the albumin structure. The characteristic feature of the plastein properties consists in these regroupings. Figures 1,2,3 show

the electrophoretic pictures, diagrams 4, 5 the spectrophotometric curves under various conditions. There are 5 figures, 3 tables, and 28 references, 20 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet i Yaroslavskiy meditsinskiy institut (Moscow State University and Yaroslavl' Medical Institute)

SUBMITTED: May 12, 1958

GAVRILOV, N.I.

General theory of protein structure. Khim.belka no.1:10-34 '61. (MIRA 15:1)

(Proteins)

AKIMOVA, A.A.; GAVRILOV, N.I.

Electroreduction as a method of studying proteins. Reduction of some diketopiperazines. Zhur. ob. khim. 31 no.1:38-42 Ja '61. (MIRA 14:1)

1. Moskovskiy gosudarstvennyy universitet.
(Piperazinedione)

GAVRILOV, N.I.; GRIGOR'YEVA, I.P.; AKIMOVA, L.N.; YEROKHIN, V.K. [deceased]

Certain properties of trityl peptides. Zhur. ob. khim. 31 no.3:739-742 Mr '61. (MIRA 14:3)

1. Moskovskiy gosudarstvennyy universitet.
(Peptides)

GAVRILOV, N.I.

GOFMAN, A.; FREY, A.I.; RUTSHMANN, I.; OTT, Kh.; SHEMYAKIN, M.M.; KISHFALUDI, L.; KOCHETKOV, N.K.; DEREVITSKAYA, V.A.; PROKOF'YEV, M.A.; SHABAROVA, Z.A.; FILIPPOVA, L.A.; SHANKMAN, S.; KHAYGA, S.; LIV, F.; ROBERTS, M.Ye.; GAVRILOV, N.I.; AKIMOVA, L.N.; KHLUDOVA, M.S.; MAKSIMOV, V.I.; IZELIN, B.M.; SHEPPARD, R.K.; SHKODINSKAYA, Ye.N.; VASINA, O.S.; BERLIN, A.Ya.; SOF'INA, Z.P.; LARIONOV, L.F.; KNUNYANTS, I.L.; GOLUBEVA, N.Ye.; KARPAVICHUS, K.I.; KIL'DISHEVA, O.V.; MEDZIGRADSKIY, K.; KAFTAR, M.; LEV, M.; KORENSKI, F.; BUASSONA, R.A.; GUTTMAN, St.; KHOYGENIN, R.L.; ZHAKENO, P.A.; BAZHUS, S.; LENARD, K.; DUAL'SKI, S.; SHREDER, Ye.; SHMIKHEN, R.; KHOKHLOV, A.S.

Results of the Fourth European Symposium on the chemistry of peptides. Abstracts of reports. Zhur. VKHO 7 no.4:468-476 '62. (MIRA 15:8)

1. Aktsionernoye obshchestvo "Sandos", Basel', Shveytsariya (for Gofman, Frey, Ott, Rutshmann). 2. Farmatsevticheskaya fabrika "G.Rikhter", Budapesht, Vengriya (for Kishfaludi, Korenski, Dualski). 3. Institut khimii prirodnykh soyedineniy AN SSSR, Moskva (for Kochetkov, Derevitskaya, Shemyakin, Khokhlov). 4. Laboratoriya khimii belka Moskovskogo gosudarstvennogo universiteta (for Prokof'yev, Shabarova, Filippova, Gavrilov, Akimova, Khludova). 5. Fond meditsinskikh issledovaniy, Passadena, Kaliforniya, Sev.Soyed.Shtaty Ameriki (for Shankman, Khayga, Liv, Roberts). 6. Laboratoriya khimii belka Instituta organicheskoy

(Continued on next card)

BAUKIN, I.S.; GAVRILOV, N.I.; KOLOMIYETS, B.T.

Preparation of equilibrium solid solutions by slow crystallization of the melt. Uch zap. AGU.Ser. fiz.-mat. nauk no.2:99-103 '63.
(MIRA 18:1)

ASOYAN, N.S.; GAVRILOV, N.I.; GORNUNG, M.B.; KREMEN', K.S.; OLEYNIKOV. I.N.; PUCHKOV, I.B.; CHERNIKOV, G.P.; SHURAN, Ye.M., red.; ZABIROV, B.Sh., red.; KUZNETSOV, A.D., tekhn. red.

[West Africa; 1:5 000 000] Zapadnaia Afrika; 1:5 000 000. Moskva, Geografizdat, 1961. fold.map. [Text] 45 p. (MIRA 15:7)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye geodezii i kartografii.

(Africa, West—Maps)

GAVRILOV, Nikolay Ivanovich; AVAKOV, R.M., otv. red.; ZOTOVA, Iu.N., red. izd-va; TSVETKOVA, S.V., tekhn. red.

[West Africa under the French yoke, 1945-1959] Zapadnaia Afrika pod gnetom Frantsii; 1945-1959. Moskva, Izd-vo vostochnoi lit-ry, 1961. 208 p. (MIRA 14:10)
(Africa, French West—Economic conditions)

GAVRILOV, N.I.; GLUSHAKOV, P.I.[deceased]; KOSOLAPOV, B.Ye.; NIKOL'SKIY, M.I.; SHCHUKIN, Ye.A.; ZABIROV, B.Sh., red.; KOSTINSKIY, D.N., red; ZHURAVLEVA, G.P., mlad. red.; GOLITSYN, A.V., red. kart; BURLAKA, N.P., tekhn. red.

[Countries of North and Northeast Africa; geographical information] Strany Severnoi i Severo-Vostochnoi Afriki; geograficheskie spravki. Moskva, Geografgiz, 1962. 39 p. (MIRA 15:7)
(Africa, North--Geography, Economic)

ASOYAN, N.S.; GAVRILOV, N.I.; GOLUBG, M.B.; KREMEN', K.S.; OLEYNIKOV, I.N.; PUCHKOV, I.B.; CHERNIKOV, G.P.; ZABIROV, [illegible]Sh., red.; KOSTINSKIY, D.N., red.; ZHURAVLEVA, G.P., mlad. red.; GOLITSYN, A.V., red. kart; BURLAKA, N.P., tekhn. red.

[Countries of West Africa; geographical information] Strany Zapadnoy Afriki; geograficheskie spravki. Moskva, Geografgiz, 1962. 47 p. (MIRA 15:7)

(Africa, West--Geography, Economic)

GAVRILOV, N.I. (Novocherkassk); PEREDEL'SKIY, L.V. (Novocherkassk)

"Sulak karst." Priroda 52 no.3:118 '63. (MIRA 16:4)
(Sulak Valley—Erosion)

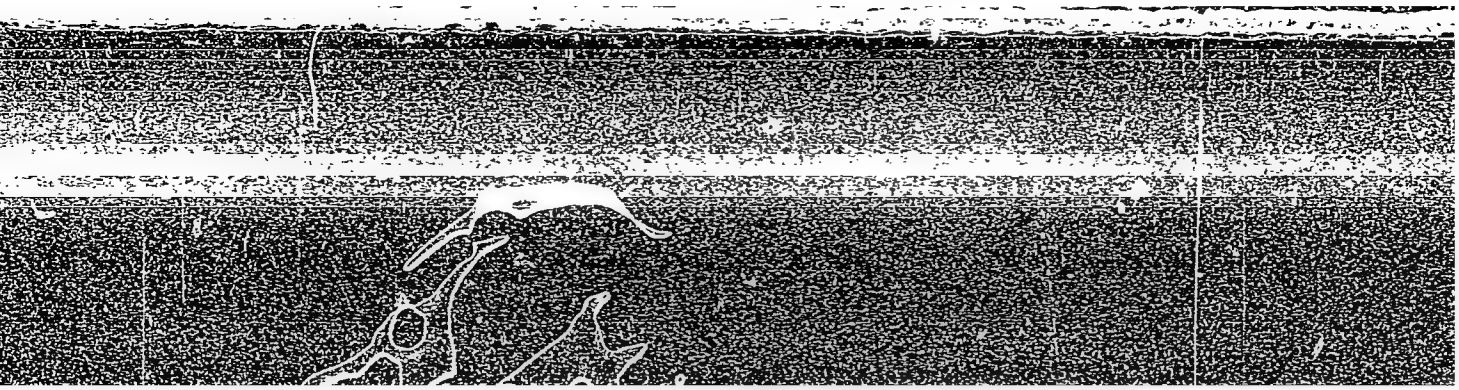
KUZAKOV, V.D., inzh., red.; GAVRILOV, N.I., inzh.; IFTINKA, G.A., red.izd-va; MOCHALINA, Z.S., tekhn. red.

[Construction specifications and regulations] Stroitel'nye normy i pravila. Moskva, Gosstroiizdat. Pt.2. Sec.N. Ch.4. [Greenhouses and hotbeds; standards of design] Teplitsy i parniki; normy proektirovaniia (SNiP II-N. 4-62). 1963. 10 p. (MIRA 16:9)

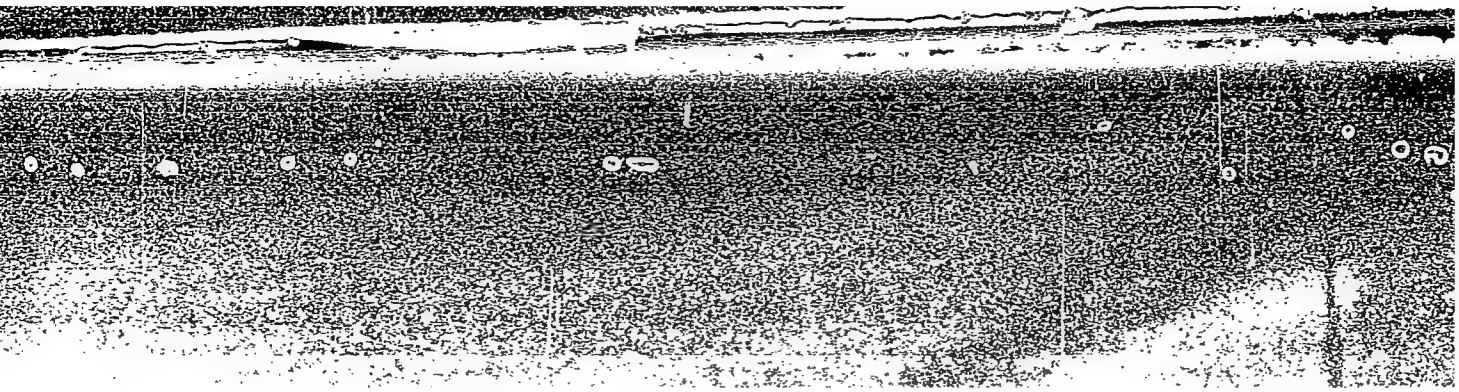
1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva. 2. Gosudarstvennyy komitet Soveta Ministrov SSSR po delam stroitel'stva (for Kuzakov). 3. Nauchno-issledovatel'skiy institut sel'skogo stroitel'stva (for Gavrilov). (Greenhouses)

GAVRILOV, N.I., inzh.

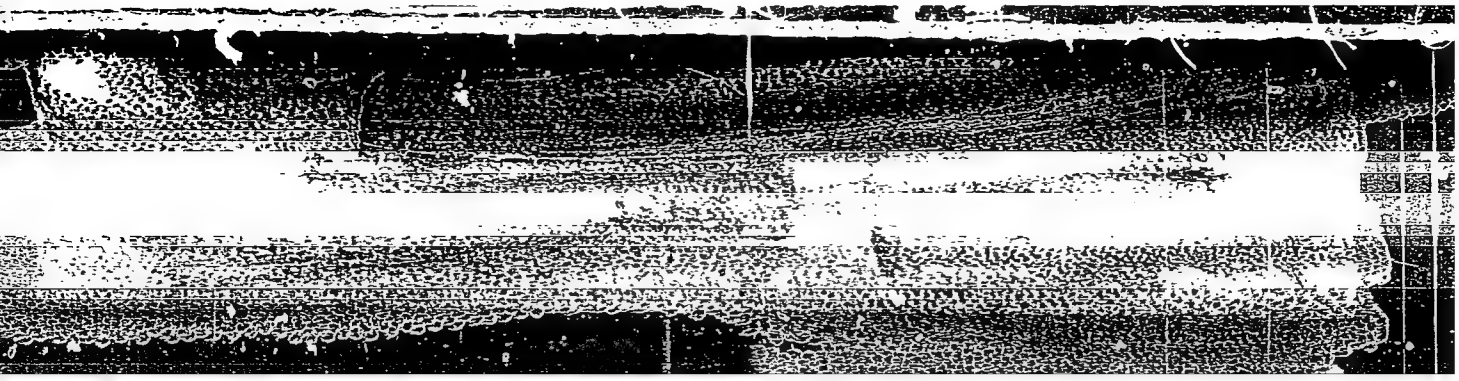
Modernized E-652A excavator. Stroi.i dor. mash. 10 no.8:
1-3 Ag '65. (MIRA 18:9)



APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R000514510003-2"



APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R000514510003-2"



APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R000514510003-2"

RAYEVSKIY, Yu.V., inzh.; GAVRILOV, N.M., starshiy inzh.; TANTSYURA, A.A., inzh.

New types of locomotive antennas. Avtom., telem. i sviaz' 5 no.4:29-35 Ap '61. (MIRA 14:6)

1. Sluzhba signalizatsii i svyazi Vostochno-Sibirskoy dorogi (for Rayevskiy). 2. Ufimskiy filial laboratorii signalizatsii i svyazi Kuybyshevskoy dorogi (for Gavrilov).
(Antennas (Electronics))
(Railroads—Electronic equipment)

24.6731 (4217)
9.3130 (1163, 1532, 1538)

S/141/61/004/002/010/017
E032/E114

AUTHORS: Shal'nov, A.V., and Gavrilov, N.M.

TITLE: The effect of frequency deviations on the output energy in a linear electron accelerator

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1961, Vol.4, No.2, pp. 306-308

TEXT: The equations of motion of electrons in a linear accelerator are of the form:

$$\frac{dW}{dz} = eE(z)\cos\varphi(z), \quad \frac{d\varphi}{dz} = \frac{2\pi}{\lambda}\left(\frac{1}{\beta_B} - \frac{1}{\beta_э}\right) \qquad (1)$$

(R.B. Neal, J. Appl. Phys., Vol.29, 1019 (1958), Ref.1),

where: $\beta_э = \sqrt{1 - (W_0/W)^2}$, W_0 is the rest energy, W is the total energy, $E(z)$ is the amplitude of the electric field, $\varphi(z)$ is the electron phase relative to the wave, and β_B and $\beta_э$ are the phase velocity of the wave and the electron velocity (in units of c). In the case of relativistic electrons it may be assumed that an increase in the energy is not accompanied by an appreciable change in the velocity, i.e. $\beta_э \sim 1$. If the phase

Card 1/6

velocity of the wave approaches the velocity of light, then it follows from Eq.(1) that the phase of the electron relative to the wave is independent of z. When the applied frequency changes owing to instabilities in the high-frequency source, the phase velocity of the accelerating electromagnetic wave also changes ($\beta_B \neq 1$). In this case the right-hand side of the second equation in Eq.(1) becomes a constant and integration yields $\varphi = \varphi_o + kz$. The relative change in the energy when the frequency departs from its nominal value is calculated from the expression

$$\frac{\Delta W}{W} = \frac{W - W_1}{W} \qquad (2)$$

where W is the energy corresponding to the nominal frequency and W_1 is the energy corresponding to the modified frequency. In order to calculate W_1 it is necessary to determine the variation of the field amplitude with z using the power balance equation

$$-\frac{dP}{dz} = 2\alpha P + IE(z) \cos(\varphi_o + kz) \qquad (3)$$

where α is the attenuation coefficient in the diaphragmed wave-

guide; I is the current, P is the high-frequency power; and $k = \Delta\varphi/z$. The latter equation can easily be transformed into the following equation for the field amplitude:

$$-\frac{dE}{dz} = I\alpha\eta\cos(kz) + \alpha E \qquad (4)$$

Integrating this equation with the initial conditions $E(z) = E_o$ when $z = 0$, it is found that

$$E(z) = \left(E_o + \frac{I\alpha^2\eta}{\alpha^2 + k^2}\right)e^{-\alpha z} - \frac{I\alpha\eta}{\alpha^2 + k^2}\left[\alpha\cos(kz) + k\sin(kz)\right] \qquad (5)$$

In order to determine W_1 use is made of the first equation in Eq.(1) in conjunction with Eq.(5) and the final result is

$$W_1 = \ldots z\left\{\left(E_o + \frac{I\eta x^2}{x^2 + y^2}\right)\left[\frac{e^{-x}}{x^2 + y^2}(y\sin y - x\cos y) + \frac{x}{x^2 + y^2}\right] - \right.$$
$$\left. - \frac{I\eta x^2}{2(x^2 + y^2)}\left[1 + \frac{1}{2y}\sin(2y)\right] - \frac{1}{2}\frac{I\eta x^2}{x^2 + y^2}\sin^2 y\right\} \qquad (7)$$

Card 3/6

S/141/61/004/002/011/017
E192/E382

Frequency-division ....

Fig. 1:

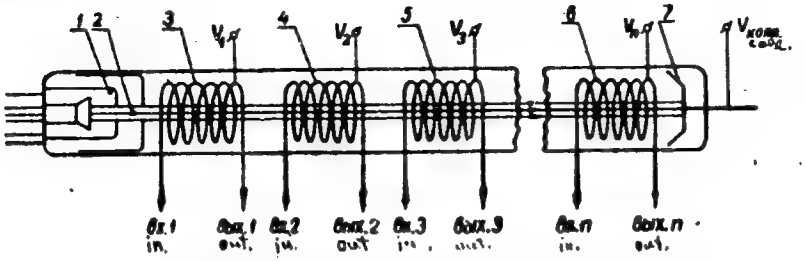
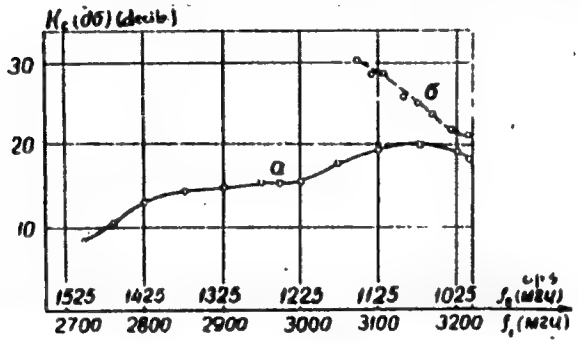


Fig. 2:



Card 8/8

where $x = \alpha z$, $y = kz = \Delta\varphi$. It is then easy to show that the approximate expression for the relative change in the energy is of the form

$$\Delta W/W = By^2/6 \qquad (12)$$

where

$$B = \frac{2x(3A - x^2) + 3\left[(x-1)^2 - e^{-x}\left\{Ax\left[(x+1)^2 + 1\right] + (x+1)^2 + 3\right\}\right]}{x^2\left[(Ax+1)(1-e^{-x}) - x\right]} \leq 1 \qquad (13)$$

Eq.(13) is plotted in Fig.1. When $I = 0$, Eq.(12) reduces to

$$\frac{\Delta W}{W} = \frac{y^2}{6}\left[\frac{6}{x^2} - \frac{3 + 6/x}{e^x - 1}\right]$$

which is in agreement with the formula published by M. Chodorov et al. (Ref.2: M. Chodorov, E. Ginzton, W. Hausen, R. Keal, R. Neal, W. Panofsky. Rev. Sci. Instr., Vol.26, 131 (1955)).
There are 1 figure and 2 English references, which read:
Ref.1: R.B. Neal, J. Appl. Phys., Vol.29, 1019 (1958).
Ref.2: as quoted in the text above.
Card 4/ 6

The effect of frequency deviations... S/141/61/004/002/010/017
E032/E114

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut
(Moscow Engineering and Physics Institute)

SUBMITTED: July 9, 1960

Card 5/6

GAVRILOV, N.M., starshiy inzh.; UGLOV, P.A., inzh.

GSS-6 standard frequency generator with frequency modulation.
Avtom., telem.i sviaz' 5 no.7:36-37 Jl '61. (MIRA 14:10)

1. Ufimskiy filial laboratorii signalizatsii i svyazi Kuybyshevskoy dorogi.
(Railroads—Communication systems) (Oscillators, Electric)

40995

S/058/62/000/009/003/069
A006/A101

24.6731

AUTHORS: Gavrilov, N. M., Shal'nov, A. V.

TITLE: Approximate analytical method of calculating the phase-energy electron distribution in a linear electron accelerator with $\beta_B = 1$

PERIODICAL: Referativnyy zhurnal, Fizika, no. 9, 1962, 4, abstract 9B43 (In collection: "Uskoriteli", no. 3, Moscow, Gosatomizdat, 1962, 39 - 43)

TEXT: In order to determine analytically the characteristics of an accelerated beam at the outlet of a section with $\beta_B = 1$, it is assumed that all the electrons (independent of the initial conditions) "slide" linearly along the phase in respect to the wave: $\varphi(z) = \varphi_0 - kz$, where φ_0 is the initial electron phase in a section with $\beta_B = 1$, k is the coefficient of proportionality, characteristic of the slip rate. In this case the integration of equations of the (longitudinal) electron motion and the determination of their initial energy is not difficult. To illustrate the method, phase-energy distributions for 10- and 30-Mev accelerators are calculated; the results obtained are in a satisfactory agreement with calculated data.

S. Semenov

[Abstracter's note: Complete translation]

Card 1/1

S/058/62/000/010/017/093
A061/A101

AUTHORS: Gavrilov, N. M., Lomnev, S. P., Milovanov, O. S., Pyatnov, Ye. G., Tyagunov, G. A., Shal'nov, A. V.

TITLE: Exit parameters and working characteristics of linear electron accelerators

PERIODICAL: Referativnyy zhurnal, Fizika, no. 10, 1962, 6, abstract 10B51 (In collection: "Uskoriteli", no. 3, Moscow, Gosatomizdat, 1962, 75 - 82)

TEXT: The working characteristics, obtained with the БЭСМ (BESM) electronic computer, of 2 - 25 Mev linear electron accelerators developed at MIFI, are presented. By working characteristics are meant the different dependences of the exit parameters of the accelerator (maximum energy, width of the energy spectrum, phase width of clusters) on the energy and flux of injected particles, as well as on the frequency and power of the h-f feed.

V. Kanunnikov

[Abstracter's note: Complete translation]

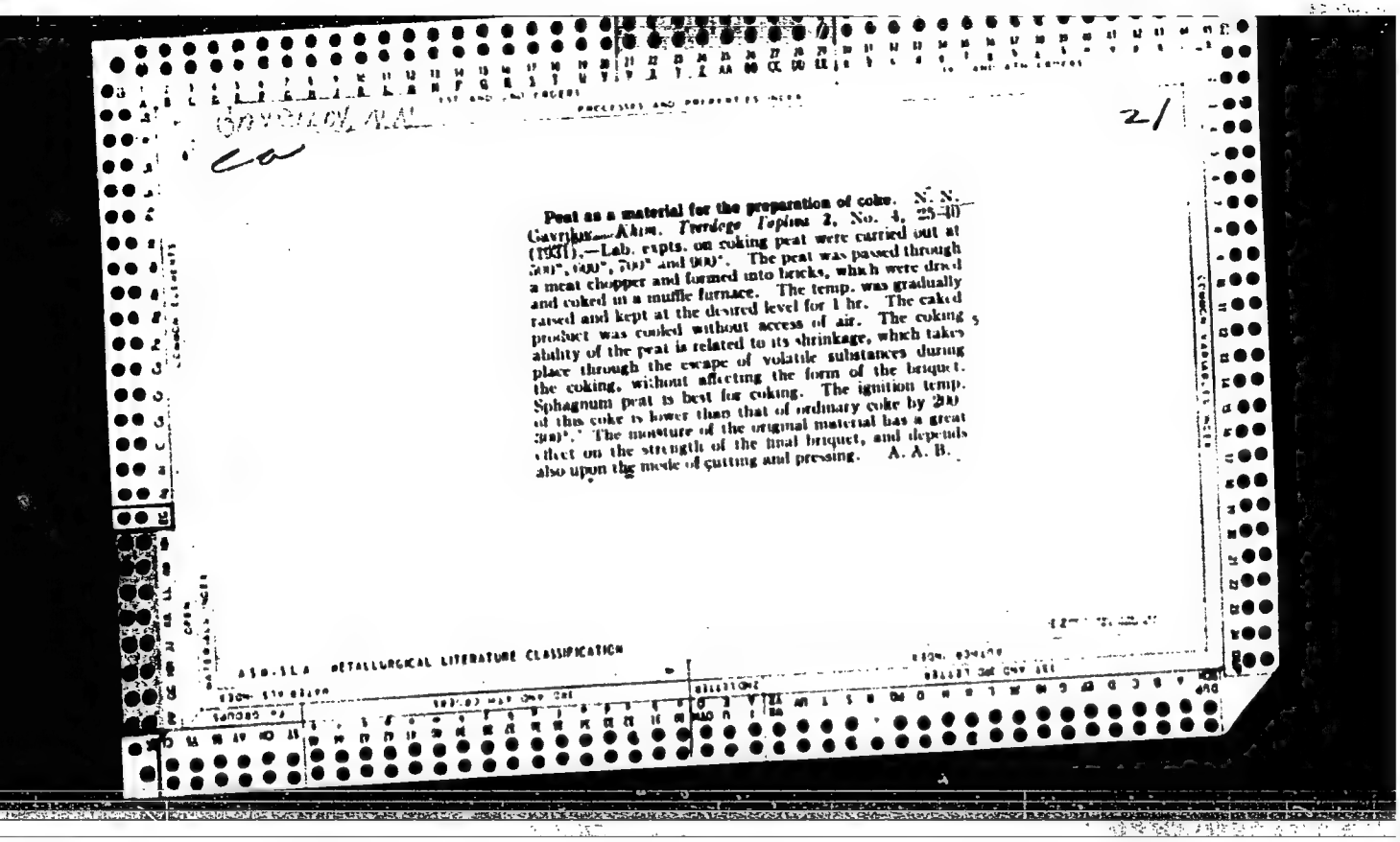
Card 1/1

AVER'YANOV, G.P.; GAVRILOV, N.M.; SHAL'NOV, A.V.

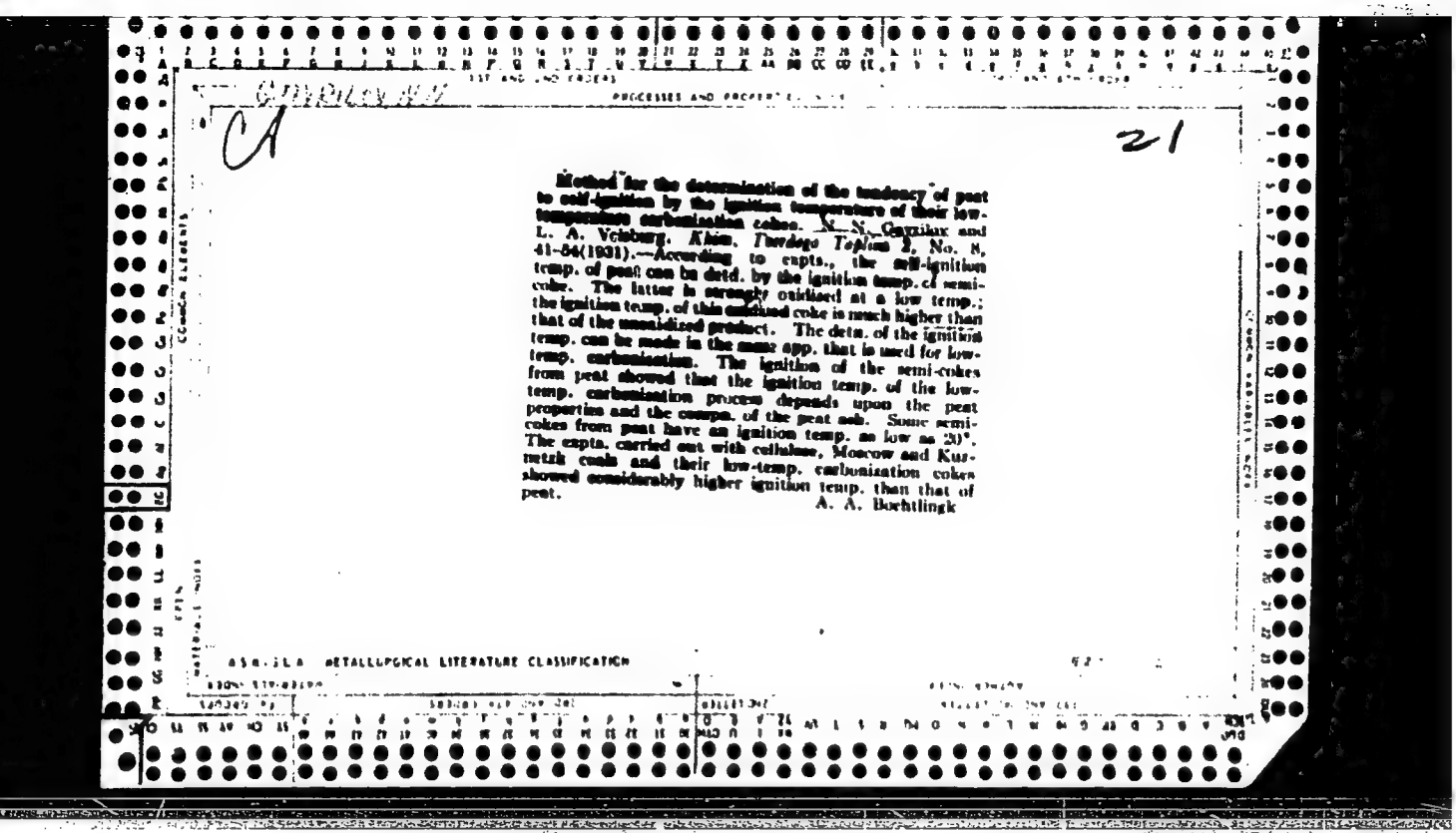
Design relationships for a double-helix wave guide. Uskoriteli no.6: 91-99 '64. (MIRA 18:2)

TINYAKOV, Georgiy Aleksandrovich; GAVRILOV, N.N., polkovnik, red.;
ZUDINA, M.P., tekhn.red.

[Piloting a helicopter] Pilotirovanie vertoleta. Izd.2., ispr.
Moskva, Voen.izd-vo M-va obor.SSSR, 1960. 182 p.
(Helicopters--Piloting) (MIRA 13:9)



Peat as a material for the preparation of coke. N. N. Gavrilov.—Khim. *Tverdogo Topliva* 2, No. 4, 25-40 (1931).—Lab. expts. on coking peat were carried out at 500°, 600°, 700° and 900°. The peat was passed through a meat chopper and formed into bricks, which were dried and coked in a muffle furnace. The temp. was gradually raised and kept at the desired level for 1 hr. The caked product was cooled without access of air. The coking ability of the peat is related to its shrinkage, which takes place through the escape of volatile substances during the coking, without affecting the form of the briquet. Sphagnum peat is best for coking. The ignition temp. of this coke is lower than that of ordinary coke by 200-300°. The moisture of the original material has a great effect on the strength of the final briquet, and depends also upon the mode of cutting and pressing. A. A. B.



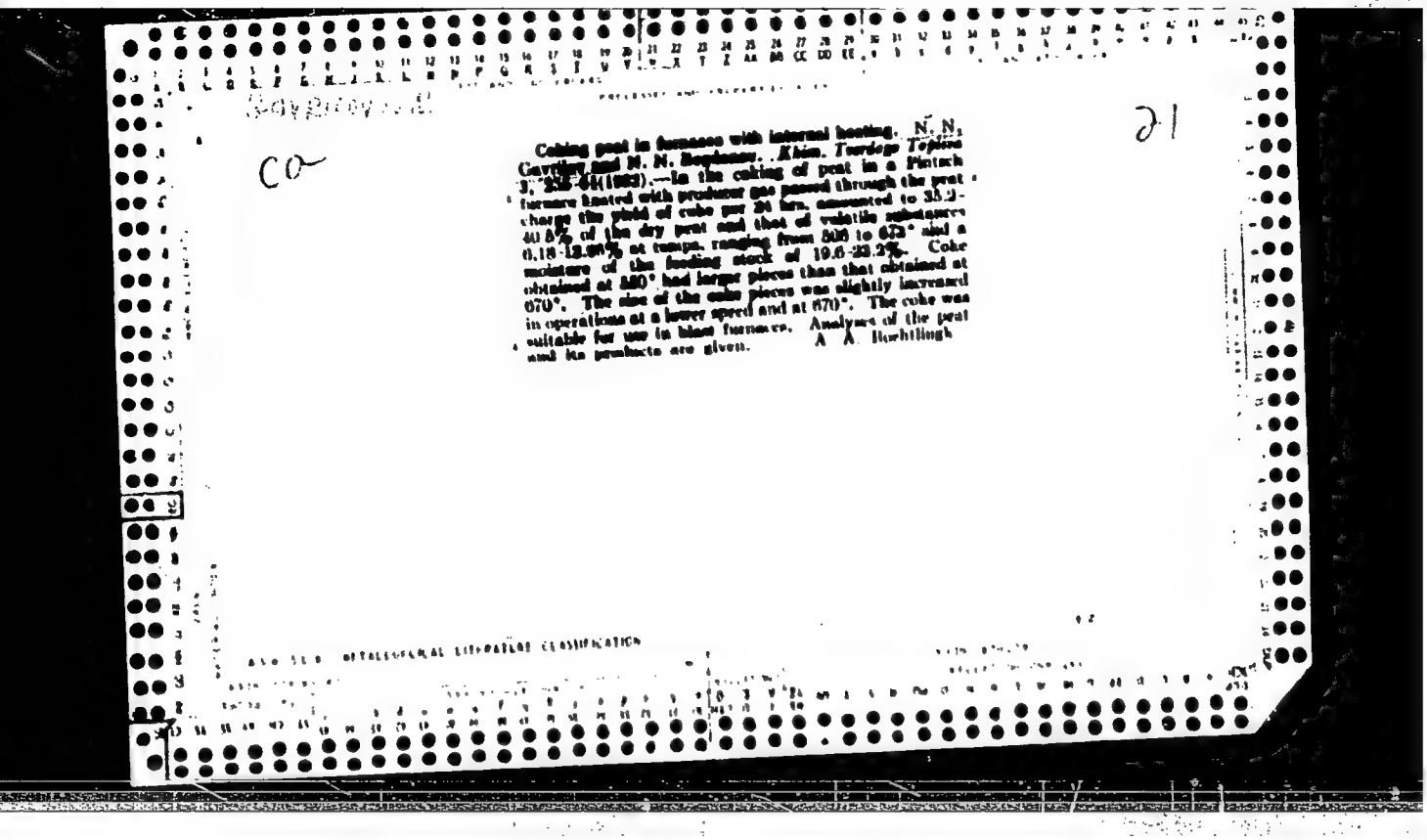
CA

21

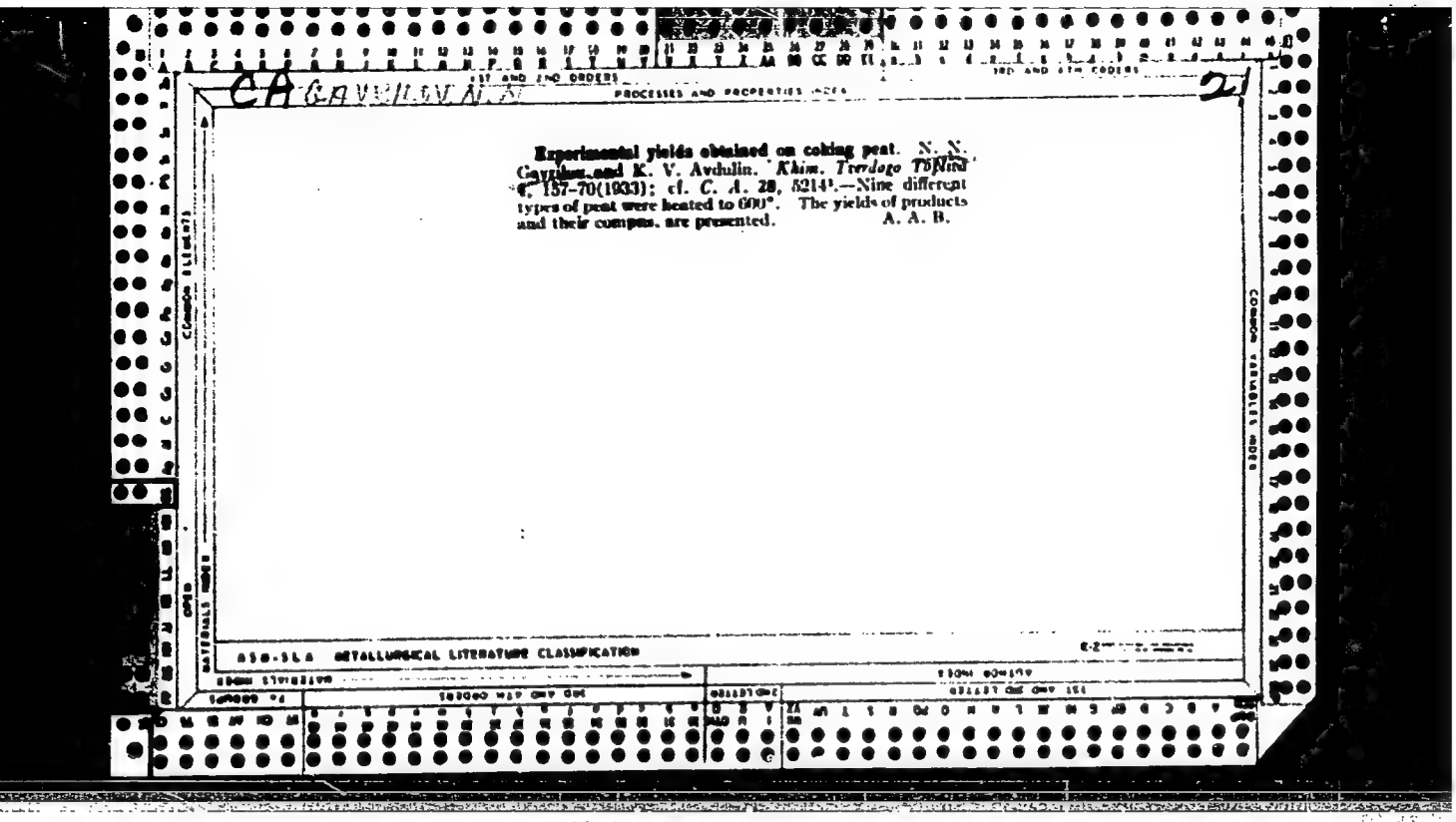
Method for the determination of the tendency of peat to self-ignition by the ignition temperature of their low-temperature carbonization cokes. N. N. Gayrilov and L. A. Veisburg. *Khim. Tverdago Topliva* 2, No. 8, 41-54(1931).—According to expts., the self-ignition temp. of peat can be detd. by the ignition temp. of semi-coke. The latter is strongly oxidized at a low temp.; the ignition temp. of this oxidized coke is much higher than that of the unoxidized product. The detn. of the ignition temp. can be made in the same app. that is used for low-temp. carbonization. The ignition of the semi-cokes from peat showed that the ignition temp. of the low-temp. carbonization process depends upon the peat properties and the compn. of the peat ash. Some semi-cokes from peat have an ignition temp. as low as 20°. The expts. carried out with cellulose, Moscow and Kuznetsk coals and their low-temp. carbonization cokes showed considerably higher ignition temp. than that of peat.

A. A. Boehtlingk

ASTIA METALLURGICAL LITERATURE CLASSIFICATION



Coking peat in furnaces with internal heating. N. N. Gavrilov and N. N. Bogdanov. *Khim. Tverdogo Topliva* 3, 325-44(1933).—In the coking of peat in a Pintsch furnace heated with producer gas passed through the peat charge the yield of coke per 24 hrs. amounted to 35.2-40.6% of the dry peat and that of volatile substances 0.18-12.98% at temps. ranging from 505 to 675° and a moisture of the feeding stock of 19.6-23.2%. Coke obtained at 580° had larger pieces than that obtained at 670°. The size of the coke pieces was slightly increased in operations at a lower speed and at 670°. The coke was suitable for use in blast furnaces. Analyses of the peat and its products are given. A. A. Berthtlingk

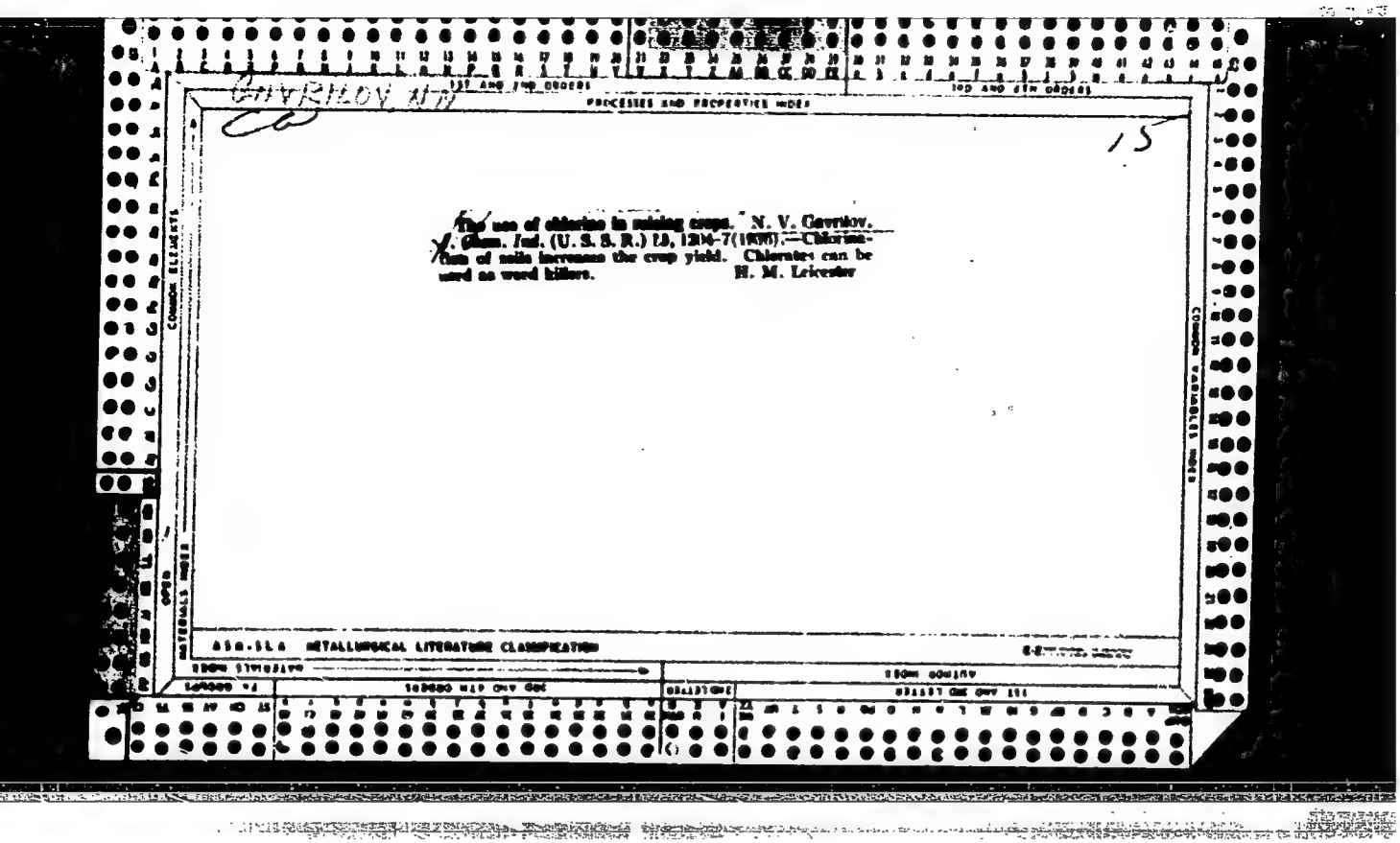


CA CAVBILOV N. S.

21

Experimental yields obtained on coking peat. N. N. Gavrilov and K. V. Avdulin. *Khim. Tverdogo Topliva* 4, 157–70(1933); cf. *C. A.* 28, 8214⁹.—Nine different types of peat were heated to 600°. The yields of products and their compns. are presented. A. A. B.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



GAVRILOV, N.N.

Chimical Research of the structure of Keratins of Wood.
1. Attempt to fractionate the keratin E.D. STAKHEYEVA-KAVERZNEVA and N.N. GAVRILOV (Lab. of Organic Cheminstry , im. Acad. N.D. ZELINSKII, MOSCOW University and Inst, of Organic Chem. of the Acad. of Sciences) vol. 2, no. 1, p.19 1938 1937

GAVRILOV, N. N.

"The protein micromolecule. VIII. The action of oxalyl chloride on diketopiperazine and the subsequent transformation of the reaction product into an acridine." by Gavrilov, N. N. and Akimova, L. N. (p.936)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1951, Volume 21, No. 5

PLATONOV, Konstantin Konstantinovich, prof., doktor med.nauk, polkovnik meditsinskoy sluzhby v otstavke; KONOVALOV, A.I., podpolkovnik meditsinskoy sluzhby, red.; GAVRILOV, N.N., polkovnik, red.; MYASNIKOVA, T.P., tekhn.red.

[Aviation psychology] Psikhologiia letnogo truda. Moskva, Voen. izd-vo M-va obor.SSSR, 1960. 350 p. (MIRA 14:2)
(AERONAUTICS—PSYCHOLOGY)

ARONIN, Grigoriy Solomonovichdotsent, kand. tekhn. nauk, inzhener-polkovnik; GAVRILOV, N.N., polkovnik, red.; MYASNIKOVA, T.F., tekhn. red.

[Practical aerodynamics; manual for flight crews] Prakticheskaia aerodinamika; uchebnik dlia letnogo sostava. Moskva, Voen.izd-vo M-va oborony SSSR, 1962. 382 p. (MIRA 15:4)
(Aeronautics)

CHESTNOV, Anatoliy Vasil'yevich, dots., kand. tekhn. nauk, inzh.-polkovnik; GAVRILOV, N.N., red.; LUKOVSKAYA, N.A., tekhn. red.

[Operation of aircraft in flight]Letnaia ekspluatatsiia samoleta. Moskva, Voenizdat, 1962. 247 p. (MIRA 15:10)
(Airplanes--Piloting)

GAVRILOV, N.P.

Simplification and improvement of statistical accounting in oil fields. Azerb.neft.khoz. 35 no.8:39-40 Ag '56. (MLRA 9:10)

(Oil fields)

GAVRILOV, N.P.

Method for determining the economic effectiveness of new petroleum production processes. Azerb.neft.khoz. 41 no.7:46-48 Jl '62. (MIRA 16:2)

(Oil fields—Production methods)

MIKHAYLOV, A.A.; GAVRILOV, N.P.

Using plastics in the machinery industry of the West Ural Economic Region. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 18 no.7:64 Jl '65. (MIRA 18:9)

GAVRILOV, N.S., inzh., red.; IFTINKA, G.A., red.izd-va; RUDAKOVA, N.I., tekhn.red.

[Technical specifications for installing elevators; SN 110-60] Tekhnicheskie usloviia na montazh liftov; SN 110-60. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1960. 25 p. (MIRA 14:1)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva.
(Elevators)

GORSKIY, Vyacheslav Vladimirovich; GAVRILOV, N.S., red.; BORUKOV, N.I., tekhn. red.

[What an electrician should know about electric equipment installation operations] Chto nuzhno znat' elektroslesariu pri elektromontazhnykh rabotakh. Moskva, Gosenergoizdat, 1963. 60 p. (Biblioteka elektromontera, no.100)
(MIRA 16:10)

(Electric wiring)
(Electric apparatus and appliances)

GAK, B.N.; GAVRILOV, N.S.; Prinimala uchastiye KANAYEVA, V.I.

Accelerated drying of bathroom fixtures. Stek. i ker. 18 no.7: 20-24 Jl '61. (MIRA 14:7)

1. Nachal'nik eksperimental'nogo uchastka Lobnenskogo zavoda stroitel'noy keramiki (for Kanayeva).
(Ceramics) (Bathrooms--Equipment and supplies)

SHULIKO, L. F., kand. tekhn nauk; YUNGMEYSTER, A. B. kand tekhn nauk; GAVRILOV, N. S., inzh.

Rapid firing of tiles produced by the casting method. Trudy NIIStroikeramiki no. 19:16-22 '62. (MIRA 17:5)

USSR / Human and Animal Physiology. Physiology of Work and Sport. T-12

Abs Jour : Ref Zhur - Biologiya, No 1, 1959, No. 3929

Author : Gavrilov, N. S.; Lecnov, T. V.
Inst : Military Medical Academy
Title : Effect of Angular Accelerations Upon Activity of the Salivary Glands and the Small Intestines

Orig Pub : Tr. Voyenno-Med. akad., 1957, 76, 103-107

Abstract : No abstract given

Card 1/1

GAVRILOV,M.V., kandidat tekhnicheskikh nauk

Remarks on designs by the Specification Regulations (TU) for culverts not placed on foundations. Transp.stroi.5 no.6:23 Ag'55. (MLRA 8:12)

(Culverts)

GAVRILOV, N.V., kand. tekhn. nauk.

Building trestle-pile bridges over rivers with ice formation. Transp. stroi. 7 no.11:28-29 N '57. (MIRA 11:2)
(Bridges, Pile) (Ice on rivers, lakes, etc.)

GAVRILOV, M.V.; BOLOTINA, O.T.; IVANYUSHIN, G.I.; VINOKUROVA, Ye.B., red.izd-va; SHLIKHT, A.A., tekhn.red.

[Automatic remote control units at the Lyublino Aeration Plant] Elementy avtomaticheskogo distantsionnogo kontrolia i upravleniia na Liublinskoi stantsii aeratsii. Moskva, Izd-vo M-va kommun.khoz.RSFSR, 1959. 62 p. (MIRA 12:10)
(Lyublino--Sewage--Purification) (Remote control)

GAVRILOV, N. V.

"Merino Sheep Raised on the Left Bank of the Kuma River and Methods of Breeding Them." Dr Agr Sci, Moscow Fur and Pelt Inst, 1 Mar 54, Dissertation (Vechernyaya Moskva Moscow 18 Feb 54)

SO: SUM 186 19 Aug 1954

USSR / Farm Animals, Cattle (Small) Q-3

Abs Jour: Ref Zhur-Biol., No 2, 1958, 7173

Author : N. V. Gaveilov
Inst : Not given
Title : Is There Any Advantage in Holding Over Fine-Wooled Ewe Lambs?

Orig Pub: Ovtsevodstvo, 1957, No 7, 40-42

Abstract: No abstract.

Card 1/1

GAVRILOV, Nikolay Vasil'yevich; SKURIKHIN, Igor' Mikhaylovich; DZHANPOLADYAN, L.M., retsenzent; KHOROSHILOV, F.N., retsenzent; KRUGLOVA, G.I., red.; KISINA, Ye.I., tekhn. red.

[Brandy industry] Kon'iachnoe proizvodstvo. Moskva, Pishchepromizdat, 1959, 78 p. (MIRA 14:7)
(Brandy)

GAVRILOV, N.V., inzh.; TAMAROV, P.B., inzh.

Causes of fissure formation in reinforced concrete shells. (MIRA 14:10)
Transp. stroi. 11 no.10:43-45 O '61.
(Reinforced concrete)

GAVRILOV, O.A.

Present-day bourgeois forensic psychology. Vop. psikhol. 10 no.3:166-173 My-Je '64. (MIRA 17:9)

1. Vsesoyuznyy institut po izucheniyu prichin i razrabotke mer preduprezhdeniya prestupnosti, Moskva.

GAVRILOV, O.A.

Problems of Soviet forensic psychology. Vop. psikhol. 11 no.6: 136-147 N-D '65. (MIRA 19:1)

1. Vsesoyuznyy institut po izucheniyu prichin i razrabotke mer preduprezhdeniya prestupnosti, Moskva.

SOV/177-58-2-6/21

17(7)

AUTHORS: Gavrilov, O.K., Colonel in the Medical Service, Candidate of Medical Sciences, Deryabin, I.I., Colonel in the Medical Service, docent

TITLE: The Medical-Tactical Significance of Achievements in Contemporary Anesthesiology

PERIODICAL: Voyenno-meditsinskiy zhurnal, 1958, Nr 2, pp 39-44 (USSR)

ABSTRACT: The article deals with recent advances in anesthetic technique and their application in military medicine. The authors discuss the use of various antihystimine substances, ganglion blocking, neuroplagic, hypotensive and other substances, as well as artificial hibernation methods in anesthesiology, and their effectiveness in combating shock. Treated also is the actual use of these substances in conjunction with local anesthetics, tranquilizers, and intra-tracheal narcosis. The authors believe that introduction of current anesthesiological methods will have a significant effect on the organization of work in medical institutions and on the organization of medical sorting and evacuation of wounded. Artificial

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hibernation techniques will be especially useful for evacuation purposes. In addition new methods of anesthetizing will permit operation before the wounded are out of shock. In the light of modern warefare evacuation will become more significant and facilities for large-scale, comfortable evacuation of the wounded will have to be provided. The authors dwell on the operation of regimental medical points and medical sorting points, according to the type of wounded and the necessary anesthetic methods to be applied to each. The use of neuroplagic substances is discussed, as is artificial hibernation. The authors consider the following problems of major importance: development of the most effective, simple and safe methods and neuroplagic substances for use on the first lines of evacuation, and the preparation of qualified anesthetological cadres. The article concludes with a note of equipment of field medical units. The following persons are mentioned in the text: A.N. Bakulev, P.A. Kupriyanov, I.S. Kolesnikov, V.N. Shamov, A.N. Berkutov, V.I. Popov, A.A. Volikov, L.A. Smetanin. There is one Soviet reference.

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POTULOV, B.M., dots. polkovnik med. sluzhby; GAVRILOV, O.K., dots. polkovnik med. sluzhby; YEVLANOV, L.S., dots., polkovnik med. sluzhby.

Military research of students of the Academy of Military Medicine in the organization of medical supplies for the army. Voen.-med. zhur. no.1:21-25 Ja '59. (MIRA 12:3)

(MEDICINE, MILITARY
med. supplies (Rus))

GAVRILOV, O.K., polkovnik meditsinskoy sluzhby, dotsent

Eliminating multistage service in the medical evacuation of wounded and sick in a military chain of medical care. Voen.-med. zhur. no.7: 9-17 Jl '61. (MIRA 15:1)

(WAR--RELIEF OF SICK AND WOUNDED)

GEORGIYEVSKIY, A.S., prof.; GAVRILOV, C.K., dotsent (Leningrad)

History of cooperation of the blood service of the country with military medical service. Probl. gemat. i perel. krovi 9 no.1: 44-46 Ja '64. (MIRA 18:1)

S/149/61/000/001/002/013
A006/A001

AUTHORS: Zhemchuzhina, Ye.A., Belyayev, A.I., Gavrilov, O.R., Drashar, Ya.

TITLE: The Effect of Magnesium Oxide on the Properties of Electrolyte in Aluminum Cells

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, 1961, No. 1, pp. 71 - 76

TEXT: It was previously established that the presence of magnesium fluoride (MgF_2) in the electrolyte of aluminum cells had a favorable effect on electrolysis. Practically, however, magnesium oxide in the form of caustic or metallurgical magnesite ($MgCO_3$), roasted at 700 or 1,200°C, is used instead of MgF_2. The authors studied the effect of magnesium oxide on the fusibility, surface properties and the cryolitic ratio of the electrolyte of aluminum cells. The fusibility of cryolite melts was studied by determining the temperature of beginning crystallization of melts using thermal analysis at a cooling rate of 2 - 4° per minute. The temperature of beginning crystallization of $NaF+AlF_3$ melts was investigated after dissolving in them. a maximum amount of magnesite within one hour at 1,010°C. Data obtained show that a drop of temperature of beginning crystalliza-

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tion was observed in all cases when roasted magnesite or pure magnesium oxide were added to the $NaF+AlF_3$ melts. Temperature curves of beginning crystallization of these melts with and without addition of MgF_2 were located much higher than liquidus lines of melts containing magnesium oxide. The drop of temperature under the effect of MgO is obviously caused by the decomposition of a portion of cryolite by magnesium oxide according to the reaction: $2Na_3AlF_6 + 3MgO \rightarrow 3MgF_2 + 6NaF + Al_2O_3$ (1). Changes in the wetting contact angles and surface properties were established by measuring the contact angles at 1,010°C of $NaF+AlF_3$ melts with a cryolitic ratio of 2.2; 2.4; 2.5; 2.6 and 2.7, containing roasted magnesite in an amount capable of being dissolved within 1 hour at the given temperature. It was found that the contact angles increased with a higher cryolitic ratio. This was obviously caused by the increased solubility of both caustic and metallurgical magnesite due to a higher cryolitic ratio and due to a stronger effect of surface-active complex MgF_3^- ions forming mainly in less acid melts $Na_3AlF_6 + 3MgF_2 = 3NaMgF_3 + AlF_3$ (2) and reducing the activity of Na^+ ions. To compare the effect of MgF_3 and MgO additions on changes in the contact angles and consequently on the interfacial tension of $NaF+AlF_3$ melts on the border with carbon, the contact angles of these melts were measured at a different cryolitic ratio in the presence of 5

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weight % caustic magnesite or 5% MgF_2. It was found that in melts with a cryolitic ratio equal to 2.5; 2.6 and 2.7, the addition of MgO had a lesser effect on the increase of interfacial tension than MgF_2. The degree of changes in the electrolyte cryolitic ratio after addition of MgO, was investigated by melting in a corundum crucible at 1,000°C, 35 g $NaF+AlF_3$ salt mixture with a definite cryolitic ratio, containing 5 weight % Al_2O_3 and a given amount of MgO. The cryolitic ratio of the melt was determined by calculation and by titration with sodium fluoride. The calculation was based on the full interaction of the whole magnesium oxide according to reaction (3): $3MgO + 2AlF_3 \rightarrow 3MgF_2 + Al_2O_3$. The calculation of the cryolitic ratio after titration was made by the formula $\frac{3a - 2b}{a + b}$ where a is the electrolyte batch in g, and b is the NaF weight in g used for titration. In all cases, when adding MgO to the cryolite-alumina melt, an increase in the cryolitic ratio was observed. Dissimilar data on changes of this ratio, being determined by hot titration and by calculation, show that more complicated processes than a simple interaction of MgO with AlF_3 take place in the $NaF + AlF_3$ melt when MgO is introduced. This may result from reaction(3) and from the interaction of magnesium

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fluoride with cryolite which is accompanied by the formation of AlF_3 in the melt according to reaction (2).

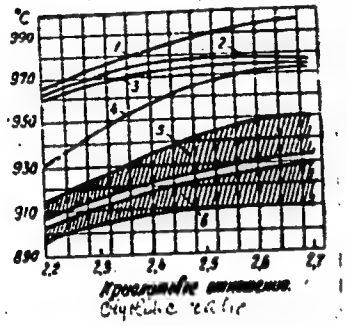

Figure 1

Temperature of beginning crystallization for pure NaF+ +AlF_3 melts (1) and melts with addition of 5% MgF_2 (2), 7.5% MgF_2 (3), 7.1% pure MgO (4), 5.8% metallurgical magnesite (5), and 7.23% caustic magnesite (6).

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The Effect of Magnesium Oxide on the Properties of Electrolyte in Aluminum Cells

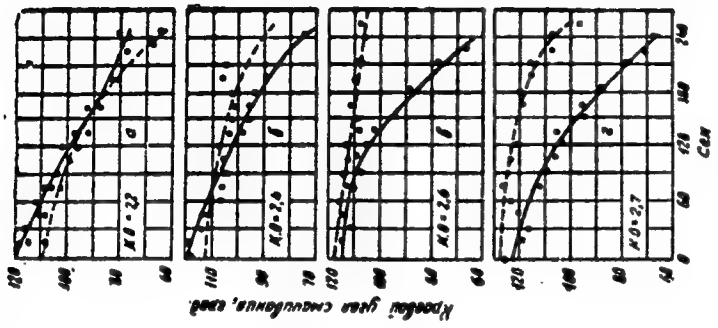

Figure 3

The effect of admixtures of 5% MgO (continuous lines) and 5% MgF_2 (dotted lines) on wetting contact angles of cryolite melts depending on time and the cryolitic ratio.

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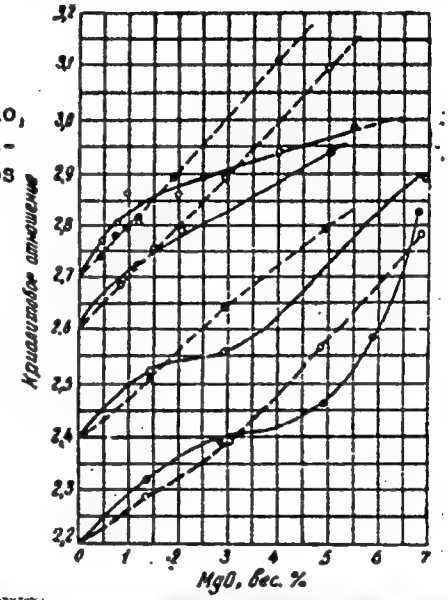
Figure 4

The effect of MgO on changes in the cryolitic ratio, determined by titration (continuous lines) and calculation (dotted lines) at initial cryolitic ratios of 2.2; 2.4; 2.6 and 2.7.



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The Effect of Magnesium Oxide on the Properties of Electrolyte in Aluminum Cells

There are 1 table and 4 figures.

ASSOCIATIONS: Krasnoyarskiy institut tsvetnykh metallov (Krasnoyarsk Institute of Non-Perrous Metals); Kafedra metallurgii legkikh metallov (Department of Metallurgy of Light Metals)

SUBMITTED: December 17, 1959

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GAVRILOV, O.R.; NISEL'SON, L.A.

The systems $NbCl_5$ - NaCl and $NbCl_5$ - KCl. Zhur.neorg.khim. 11 no.1:209-211 Ja '66. (MIRA 19:1)

1. Submitted March 1, 1965.

SOV/133-58-11-6/25

AUTHORS: Boychenko, M.S., Candidate of Technical Sciences, Gavrilov, O.T., Kan, Yu.B. and Kononov, B.Z., Engineers

TITLE: Semi-continuous Casting of Stainless Steel (Polunepreryvnaya razlivka nerzhaveyushchey stali)

PERIODICAL: Stal', 1958, Nr 11, pp 983 - 987 (USSR)

ABSTRACT: Semi-continuous casting of steel 1Kh18N9T into slabs 175 x 300 mm for the production of cold-rolled sheets is described. Steel is smelted in a 20ton basic electric furnace and after casting eight 4-ton ingots the remaining steel is poured into an intermediate capacity preheated to 1 100 - 1 200 °C of the semi-continuous casting machine. From the intermediate capacity the metal is passed into a crystalliser (mould) through a 90° bend passage with a velocity of 1 100 - 1 200 mm/min and is cast into slabs 4 500 mm long, weighing 1 700 kg. The initially used and subsequently modified casting equipment is shown in Figures 1 and 2, respectively. The main difficulty in obtaining quality sheets was the formation of skin on the surface of the metal in the crystalliser and its subsequent passage into the ingot. To prevent this, a wooden plank is placed on the level of the metal of a somewhat smaller cross-section than

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that of the slab. In the centre of the plank, an opening for the passage of the stream of metal is made. Such planks protect the surface of the metal from oxidation, decrease heat losses and form a good lubrication of the walls of the crystalliser during casting, as they evolve volatiles condensing on the walls. The above considerably decreased the formation of skin. Cast slabs are weighed and cut into measured lengths using an aluminium-magnesium powder (the width of the cut 8-12 mm). From the head part about 250 mm (about 5.5% of the length) is cut off in order to remove shrinkage cavity (Figure 3). The surface of the slabs is planed to a depth of about 5 mm. The macrostructure of the cast slab is shown in Figure 4. Two main forms of non-metallic inclusions were observed: a) titanium nitrides, situated in groups in the underskin layer, in the axial zone at a distance of 1/4 of the slab thickness (Figure 5a); b) very fine inclusions in the form of thin, broken chains which are probably carbo-nitrides (Figure 5b). The microstructure of the metal was dendritic, more coarse in the middle than at the surface
 of the slab (Figure 6). Mechanical properties and

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resistance to inter-crystalline corrosion of cold-rolled sheets from ordinary and semi-continuously cast ingots was approximately the same and corresponded to requirements of TU 3126-52. The surface quality of the sheets from the above two kinds of ingots was the same.
The process of crystallisation of semi-continuously cast slabs was investigated using radioactive phosphorus. Samples of radioactive phosphorus mixed with powdered iron and enclosed in a copper tube (about 100 mm long) were fixed to a steel rod which was introduced into the slab immediately after the end of casting (casting velocity 1 000 mm/min). The results of the investigation (shown in Figure 7) indicated that permissible linear velocity of casting is within a range of 1 100 - 1 200 mm/min. During the development of the practice, altogether 130 tons of the steel were cast in this manner with a coefficient of utilisation of metal of 1.96 instead of 2.11 when producing cold-rolled sheets from ingots. There are 7 figures and 2 Soviet references.

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Semi-continuous Casting of Stainless Steel

ASSOCIATIONS: TsNIIChM and Zavod "Krasnyy Oktyabr'" ("Krasnyy Oktyabr'" Works)

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